

Atty. Docket No. YOR20000388US1
(590.022)

REMARKS

Applicants and the undersigned are most grateful for the time and attention accorded this application by the Examiner. The Office is respectfully requested to reconsider the rejections applied against the instant application in light of the foregoing amendments and the remarks presented below.

In the Office Action dated January 3, 2007, pending Claims 1, 2, and 4-18 were rejected and the rejection made final. Claims 1, 7, and 13 are independent claims; the other claims are dependent claims. Claims 3 and 9 were previously cancelled. In response Applicants have filed herewith a Request for Continued Examination, cancelled Claims 2, 8, 15, and 16, and rewritten independent Claims 1, 7, and 13. The amendments made herein are not in acquiescence of the Office's position on allowability of the claims, but merely to expedite prosecution. Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

The rejections in the outstanding Office Action are as follows: claim 18 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite; claim 1 stands rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description of the invention requirement; claims 1, 4-7 and 10-17 stand rejected under 35 USC 102(b) as anticipated by Wantanabe et al. (U.S. Patent No. 5,754,681) (hereinafter "Wantanabe"); claims 2 and 8 stand rejected under 35 USC 103(a) as being unpatentable over Watanabe in view of Chittineni et al. (*On the Maximization of Divergence in Pattern Recognition – Correspondence*, IEEE Transactions on Information Theory, September

Atty. Docket No. YOR20000388US1
(590.022)

1976) (hereinafter "Chittineni"); claim 18 stands rejected under 35 U.S.C. § 103 as being unpatentable over Watanabe in view of Decell et al. (An iterative approach to the feature selection problem, Machine Processing of Remote Sensing Data, 1972) (hereinafter "Decell"). Reconsideration and withdrawal of the rejections is hereby respectfully requested.

Rejections under 35 U.S.C. § 112:

Claim 1 stands rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description of the invention requirement. Specifically, the Examiner states that the specification fails to disclose "wherein said minimizing step is performed non-incrementally." (Office Action, page 5, paragraph 6). Applicants respectfully request reconsideration and withdrawal of this rejection.

In an effort to expedite prosecution, Applicants have amended claim 1 to recite, *inter alia*, "wherein said objective function *maximizes an average pairwise divergence over all dimensions at a single step*." (Claim 1, emphasis added). The specification (page 6, line 15-page 7, line 5; page 10, equation (7) and related text; see also page 14, line 10-page 15, line 11) clearly discloses that the maximization of average pairwise divergence is done, over all dimensions, in a single step (i.e. non-incrementally). Applicants have eliminated the objectionable language from the claim and amended the language in an effort to clarify the non-incremental nature of the invention. Therefore, Applicants respectfully submit that claim 1 is fully supported by the disclosure as originally filed and request withdrawal of the 35 U.S.C. § 112 rejection of claim 1.

Atty. Docket No. YOR20000388US1
(590.022)

Claim 18 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Examiner points to particular variables used in the equation of claim 18 as not having proper support in the specification. Applicants respectfully request reconsideration and withdrawal of this rejection.

Applicants wish to direct the Examiner's attention to the specification, wherein the equation of claim 18 is found in its entirety at page 10, line 11-page 12 line 1; and, furthermore, the equation of claim 18 is mathematically developed throughout the specification (page 7, line 6-page 11, line 1), and the particular variables are explicitly defined at: page 9, line 6 (D_o); page 6, line 16 (C); page 8, line 2 (θ); page 10, lines 6-8 (θ^T); page 10, line 7 (\sum_i (i is a class) and \sum_j (j is a class)); page 10, line 7 (μ_i and μ_j); page 11, line 1 (S_i); page 8, lines 1-2 and 10-11 (p). Therefore, it is respectfully submitted that the equation of claim 18 is fully supported by the specification, and withdrawal of this rejection is respectfully requested.

Rejections Under 35 U.S.C. § 102(b):

Claims 1, 4-7 and 10-17 stand rejected under 35 USC 102(b) as anticipated by Watanabe. Reconsideration and withdrawal of these rejections is respectfully requested in light of the following remarks.

As the Examiner is fully aware, a 35 U.S.C. § 102(b) rejection at least requires that the invention was patented or described in a printed publication more than one year prior to the date of the application. Applicants respectfully submit that Watanabe clearly falls short of the invention as claimed.

Atty. Docket No. YOR20000388US1
(590.022)

At best, Watanabe relates generally to a signal recognition apparatus wherein features are extracted from an input and *a plurality of feature transformations* (i.e. one per each class) are performed by discriminant functions. (Watanabe, Abstract; see also Fig. 1). Specifically, the Examiner cites Watanabe as disclosing “developing an objective function” (col. 18, lines 59-68) and “optimizing the objective function through gradient descent” (col. 19, lines 8-9). (Office Action, page 5). Although Watanabe discloses an apparatus for signal pattern recognition, the method of feature transformation is inapposite to the instantly claimed invention.

In contrast to Watanabe, in the instantly claimed invention there is contemplated a single feature space transformation (i.e. one for all the classes). (Specification, page 7, lines 1-5). Accordingly, in order to expedite prosecution, claim 1 has been amended to recite, *inter alia*, “wherein there is *only one feature space transformation for all classes*.” (Claim 1, emphasis added). Claims 7 and 13 have been amended to recite similar language. This language is intended to more clearly indicate that the instantly claimed invention performs one feature transformation for all classes, as disclosed in the specification and in contrast to Watanabe.

Rejections under 35 U.S.C. § 103(a):

Dependent Claims 2 and 8 stand rejected under 35 USC 103(a) over Watanabe et al. and in further view of Chittineni et al. Although claims 2 and 8 have been cancelled in an effort to expedite prosecution, consideration of the following remarks distinguishing the instantly claimed invention from the combination of Watanabe and Chittineni is

Atty. Docket No. YOR20000388US1
(590.022)

respectfully requested because the limitations of claims 2 and 8 have essentially been incorporated into claims 1 and 7, respectively.

A 35 USC 103(a) rejection requires that the combined cited references provide both the motivation to combine the references and an expectation of success. Not only is there no motivation to combine the references, no expectation of success, but actually combining the references would not produce the claimed invention. Thus, the claimed invention is patentable over the combined references and the state of the art.

The Examiner has indicated that Watanabe does not specifically mention maximizing average pairwise divergences. The Examiner states that “Chittineni et al. do teach the feature of maximizing an average pairwise divergence.” (Office Action, page 7). The maximization of Chittineni, however, *is done by a function which maximizes the pairwise divergence incrementally*, one dimension at a time.

Maximizing the average pairwise divergence incrementally stands in stark contrast to the instantly claimed invention in that the objective function is maximized *over all the dimensions at once* (i.e. non-incrementally). (Specification, page 10, line 11- page 11, line 1). Furthermore, Chittineni does not overcome the deficiencies of Watanabe described above. Thus, Applicants respectfully submit that Chittineni in combination with Watanabe is insufficient to render the invention, as claimed, obvious under 35 U.S.C. § 103.

Dependent claim 18 stands rejected under 35 U.S.C. § 103 as being unpatentable over Watanabe in view of Decell. Specifically, the Examiner finds the equation of claim

Atty. Docket No. YOR20000388US1
(590.022)

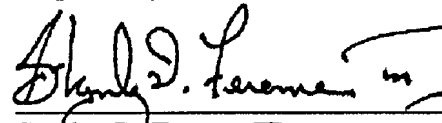
18 disclosed in Decell. Applicants respectfully request reconsideration and withdrawal of this rejection as the rejection is now moot in view of the amendments to independent Claim 1 as discussed above.

Conclusion:

In view of the foregoing, it is respectfully submitted that independent Claims 1, 7 and 13 fully distinguish over the applied art and are thus allowable. By virtue of dependence from what are believed to be allowable independent Claims 1, 7 and 13, it is respectfully submitted that Claims 4-6, 10-12, 14, and 17-18 are also allowable.

In summary, it is respectfully submitted that the instant application, including Claims 1, 4-7, 10-14 and 17-18, is in condition for allowance. Notice to the effect is hereby earnestly solicited. If there are any further issues in this application, the courtesy of a telephone interview is requested prior to the issuance of a further Office Action in this case.

Respectfully submitted,



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